

Southeastern Space Supporter

Newsletter of HAL5 – the Huntsville Alabama L5 Society chapter of the National Space Society

Volume 9, Number 1 — January–February 2000

FIRST WORD

Next Hundred Years — Wow!

(by Ronnie Lajoie, SSS Editor)

Whether you believe the 3rd millennium starts this year or next, and whether you believe the 21st century starts this year or next — you have to admit that the world is celebrating the dawn of a new era. Welcome to the Future!

Now It's Our Turn!

For almost three decades, space activists have been struggling to get the common person brought back into the scenarios of the U.S. space program. We not-so-patiently watched as trained astronauts made the journey again and again into space, wondering when it would be our turn. Well, that turn has finally arrived. Welcome to the Future!

The seeds that we planted back in 1974 and carefully nurtured for 25 years are finally beginning to bear fruit. Space tourism is finally being seriously discussed and researched by both private industry and the world governments.

(see Future, on page 5)

HAL5 Program Night

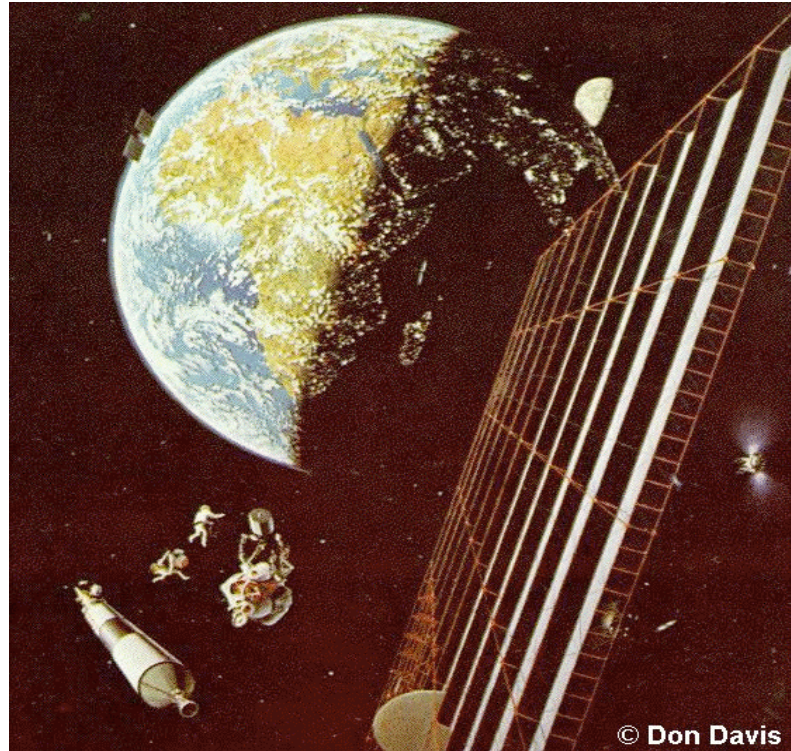
Thursday, February 3, 2000

7 to 8:30 p.m. (with social afterwards)
Huntsville Public Library Auditorium
**“Our Expanding Universe and
other Theological Anomalies”**

Guest speaker will be George McKay, NASA aerospace engineer (retired), Bible researcher, and HAL5 member.

All HAL5 and NSS members are encouraged to attend, and to bring interested friends and co-workers. Open to the public. Free admission.

Welcome to the Future!



© Don Davis

PROJECT HALO NEWS

FAA Forum on Small Rockets

(by Ronnie Lajoie, HALO member)

“It was the best of times, it was the worst of times.” Those famous words from the book *A Tale of Two Cities* are apropos to Project HALO as we begin the year 2000. HALO members awoke from their New Year’s celebration to find a notice from the FAA in their email inbox. The full text of the notice starts on page 3 of this newsletter.

Starting at 8 a.m. CST on Monday, February 28, the FAA will be conducting an on-line forum to debate the future of regulations on “small-scale rockets”. The 12-day forum runs until 3:30 p.m. CST on Friday, March 10. The Web site address for the forum is:

<http://ast.faa.gov/publicforum/>

Obviously, both Project HALO team members and HALO supporters should be very interested and somewhat concerned. If we all participate in the on-line forum, we stand a good chance of making changes to regulations that would ease our technical, administrative, and financial burdens in the future. On the other hand, if few of us participate, we run the risk of someone else possibly succeeding in banning rockoons (thus ending Project HALO) or otherwise increasing our technical, administrative, or financial burdens.

The choice is ours and YOURS. For all our sakes, please help to make certain that the year 2000 is “the best of times” for Project HALO! Ad Astra! ☆

Huntsville Alabama L5 Society

President — Greg Allison
Day: 544-4440, Eve: 859-5538

Vice-President — Gladys Young
Day: 852-0561, Eve: 852-0561

Treasurer — Ronnie Lajoie
Day: 971-3055, Eve: 721-1083

Secretary — Wade Dorland
Day: 551-0008, Eve: 534-2566

Membership — Philomena Grodzka
Day: 536-8638, Eve: 536-8638

Communications — Ellen Cozelos
Day: 726-6387, Eve: 883-4873

Southeastern Space Supporter

Volume 9, Number 1
January / February 2000

The *Southeastern Space Supporter* is a bimonthly publication of the Huntsville Alabama L5 Society (HAL5), a not-for-profit 501(c)(3) organization devoted to the goal of seeing everyday people living in thriving communities beyond the Earth.

Any opinions expressed in this newsletter are those of the authors or of the Editor, and, unless expressly so stated, are not necessarily those of HAL5 or the NSS.

Visit the HAL5 Web Page on Internet via:

<http://hiwaay.net/~hal5/>

HAL5 encourages its members to speak out on space-related issues, and welcome submissions of both fact and opinion articles of interest to HAL5 members.

Submit letters or articles to: Ronnie Lajoie
162 Kirby Lane, Madison, AL 35757
Day phone/message: 256-461-5934
Night/Weekend phone: 256-721-1083
FAX number: 256-971-3333
Electronic mail address: hal5@hiwaay.net

Deadline for submittal is the last day of the following months: February, April, June, August, October, and December.

Preferred format for plain text is ASCII (text with graphics is *MS Word* or *WordPerfect*) either sent by E-mail or on a PC diskette. Also acceptable are letters and articles sent by mail or faxed; however, the more retyping required, the less likely the acceptance. HAL5 is not responsible for receipt of mailed submissions; none will be returned unless sent with a SASE. Hand-delivered diskettes will be hand-returned. No compensation is paid for submissions.

HAL5 Membership Benefits

If you are employed between the ages of 22 and 64, membership to HAL5 costs \$20 per year. If you are under age 22, over age 64, retired (over age 55), or otherwise unemployed, membership costs only \$10 per year. What do you get for your money?

Much of your dues covers your subscription to the 8-12 page bimonthly newsletter, the *Southeastern Space Supporter*, which costs about \$10 annually per person. HAL5 also offers an option to just subscribe to the newsletter for \$10 — this may be better for those of you who are employed but not living in the north Alabama region.

Another part of your dues covers your notices of HAL5 hosted or recommended programming activities. Flyers announcing space-related programs and conferences will be periodically inserted into your newsletter. At other times, postcard announcements will be mailed directly to you. If time is short, we may telephone you and/or send you E-mail. As long as you are interested, HAL5 will keep you informed of upcoming space-related events in Huntsville and vicinity, as well as those times for action when space policy issues arise.

Discounts for HAL5 Members

HAL5 members will receive discounted prices on all HAL5 merchandise. Currently, we are selling Project HALO T-shirts at \$10 for members, and \$12 for non-members (plus \$3 shipping and handling where necessary). We have Medium sizes left only. We are also selling the special Education issue of *Ad Astra* magazine for \$1 for members, and \$3 for non-members.

HAL5 members will receive discounted rates to all HAL5-sponsored events and conferences for which there is an entrance fee. The Executive Committee is discussing having HAL5 host a regional NSS conference in October, to tie in with the new United Nations World Space Week, October 4 to 11. HAL5 members will probably save \$10.

HATS Services for HAL5 Members

One of the major benefits of being a HAL5 member is having access to the services of the Huntsville Association of Technical Societies (HATS).

HATS is a non-profit association of Huntsville technical and professional societies dedicated to the advancement of science and engineering, and hosts the annual TABES (May) industrial conference and exhibit.

Career Enhancement Program

HATS runs a Career Enhancement Program which hosts workshops (every month or two). Topics cover putting together effective resumes and creating effective presentations. These career workshops are usually free for members of HATS societies.

Job Assistance and Referral Program

HATS runs a Job Seeking and Referral Program (JSARP) which sends member resumes out to all of its technical societies. If you need a job, this may be your best benefit yet! As a professional courtesy to members of HATS organizations, HATS puts their resumes on file at the HATS office. These resumes are available, at no charge, for review by employers.

The process begins when employers provide HATS with a list of keywords that describe the position they wish to fill. A computerized keyword search is conducted on the actual text of each resume on file. The resumes which reflect at least some of the keywords will then be faxed to the employer.

If you need a job, or a better one, I urge you to submit your resume to the HATS JSARP program immediately.

It's Decision Time

I hope I have convinced you that you get a lot for your dues. Please complete the enclosed HAL5 Membership Renewal Form and mail it, any other completed forms, with your check. Thank You! ☆

FAA Forum on Small Rockets

(notice issued on December 23, 1999 by Joseph Hawkins, Associate Administrator for Commercial Space Transportation)

Federal Register / Vol. 64, No. 250 / Thursday, December 30, 1999 / Notices
Department of Transportation
Federal Aviation Administration
[Docket No. FAA-1999-6574]
Small-Scale Rockets

Summary

The FAA announces an on-line public forum on the Internet to solicit comments and information from the public on the regulation of launches of small-scale rockets. Based on information received, the FAA may initiate rule-making to redefine the scope of launch activities that would not require FAA licensing. The FAA is also considering a simplified launch license (light-license) for designated classes of launch activities. This on-line public forum is intended to aid the FAA in its regulatory effort by receiving early input from the affected community.

Dates

The on-line public forum will begin on February 28, 2000, at 9 a.m. EST and end on March 10, 2000, at 4:30 p.m. EST. Written comments submitted to the docket must be received no later than March 24, 2000.

Addresses

The on-line public forum can be reached by clicking the "On-Line Public Forum" hyperlink on the Associate Administrator for Commercial Space Transportation's (AST) Internet home page, <http://ast.faa.gov/>, or going directly to <http://ast.faa.gov/publicforum/>.

Persons who are unable to participate in the on-line public forum and wish to submit written comments may mail or deliver their comments in duplicate to: U.S. Department of Transportation Dockets, Docket No. FAA-1999-6574, 400 Seventh Street, SW., Room Plaza 401, Washington, DC 20590.

Comments may also be sent electronically to the Documents Management System (DMS) at the following Internet address: <http://dms.dot.gov/> no later than March 24, 2000.

Written comments, other than those provided during the on-line public forum, may be filed and/or examined in Room PL 401 between 10 a.m. and 5 p.m. weekdays except Federal holidays. Written comments to the docket will receive the same consideration as statements made during the on-line public forum.

For Further Information Contact:

J. Randall Repcheck, Licensing and Safety Division, Commercial Space Transportation, (202) 267-8379, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; or Ms. Esta M. Rosenberg, Attorney-Advisor, Regulations Division, Office of the Chief Counsel, (202) 366-9320.

Supplementary Information

The on-line public forum will allow near real-time electronic discussion on the regulatory aspects of small-scale rockets. The discussion will allow a large cross-section of the interested public to share views with each other and the FAA, and assist the FAA in redefining the regulatory framework for small-scale rocket activities.

Background

Under 49 U.S.C. Subtitle IX, ch. 701, popularly referred to as the Commercial Space Launch Act of 1984, as amended (CSLA or the Act), any person proposing to launch a launch vehicle within the United States, and any U.S. citizen proposing to launch a launch vehicle outside the United States, must obtain a license authorizing the launch. 49 U.S.C. 70104(a). The FAA authorizes launches by the private sector to protect public health and safety, safety of property, and national security interests and foreign policy interests of the United States.

Regulations implementing the Act were issued in a final rule on April 4, 1988. The 1988 final rule, Commercial Space Transportation Licensing Regulations, 14 CFR Ch. III, exempted certain small-scale rocket activities from licensing requirements. In the preamble to the 1988 final rule, the Office of Commercial Space Transportation (OCST), the predecessor office within the Department of Transportation responsible for carrying out the authority of the Secretary under the Act, explained that Congress did not intend the CSLA to encompass small-scale rocket launches from private sites conducted for recreational or educational purposes. The OCST stated that these types of launches do not warrant licensing and regulatory oversight under the CSLA.

Definition of an Amateur Rocket

In the 1988 final rule, launches of small-scale rockets of limited performance were termed "amateur rocket activities." Under 14 CFR 401.5, a launch constituting an amateur rocket activity is one which takes place from a private site and involves a rocket that meets all three of the following criteria:

1. The rocket motor(s) has a total impulse of 200,000 pound-seconds or less; and
2. The rocket motor(s) has a total burning time or operating time of less than 15 seconds; and
3. The rocket has a ballistic coefficient — i.e., gross weight in pounds divided by frontal area of rocket vehicle — less than 12 pounds per square inch.

Impact of HALO and CATS-Prize

Small-scale rocket technology has emerged since 1988 such that the regulatory definition of "amateur rocket activities" may inadequately define the full range of rocket activities that may be excluded from FAA launch licensing because they do not pose sufficient risk to public health and safety and safety of property to warrant FAA licensing.

Conversely, the current definition may exclude from FAA licensing certain launch activities that pose sufficient risk to public health and safety and safety of property as to warrant FAA licensing. This mismatching of the definition of “amateur rocket activities” with current small-scale rocket activities is due to a number of development since 1988, including:

1. Small-scale launch vehicles that meet the criteria listed under the definition of “amateur rocket activities” in 14 CFR part 401 have become more powerful and sophisticated. These vehicles can achieve higher performance levels than anticipated under the current definition of “amateur rocket activity.” Higher performance can lead to the ability to reach greater altitudes and travel greater distances resulting in greater risk to public health and safety and safety of property.
2. A number of small-scale launch vehicles are being developed and launched using liquid propellants. Even though these vehicles may not have the size or power to warrant FAA licensing, they may have a burn time of 15 seconds or more and therefore do not meet a criterion of “amateur rocket activities.” Under the current regulations, a person wishing to launch a liquid-propelled launch vehicle with a burn time of 15 seconds or greater would require a license or would have to apply to the FAA to waive the requirement for a license.
3. New commercial launch concepts often begin with developmental tests using prototypes or other test vehicles. Some test vehicles are relatively powerful, but have limited altitude or range capability. Launches of these vehicles may not meet the definition of amateur rocket activities. However, launch vehicles that have limited altitude and range can be contained within a controlled area without using a flight safety system. Thus, only minimal safety measures are needed to protect the public from launch hazards.

New Regulatory Initiative

The FAA is considering two issues. The first is the need to redefine the scope of small-scale launch activities that may be conducted without an FAA license. Small-scale rocket technology has advanced over the years beyond that contemplated in the existing definition. FAA licensing may be necessary for certain small-scale rocket activities not currently licensed under the CSLA. Conversely, certain launch activities that do not currently meet the definition of “amateur rocket activity” may not require FAA licensing for reasons previously explained.

The second issue the FAA is considering is whether to establish a new launch licensing procedure entailing fewer application requirements or licensee responsibilities than those currently codified as part of the FAA’s launch licensing provisions. 14 CFR Parts 413 and 415. This “light-license” would be appropriate for certain small-scale rocket activities that pose unacceptable risk to persons and property absent the use of certain essential safety standards. A “light-license” would ensure, with minimal burden, that launch operators take appropriate safety precautions to protect public health and safety and the safety of property.

Identifying activities within these two classes, unlicensed and “light-licensed,” is complicated because of the diversity of activities, the wide range of launch vehicles used, and the number and variety of launch sites used. The on-line public forum will enable the FAA to solicit information from hobbyists, educators, rocket organizations, launch companies with developmental or test vehicles, state and local government agencies that regulate various aspects of rocketry, private land owners whose land is used for rocket launches, and the general public.

The FAA hopes that an on-line public forum that allows the public to discuss diverse issues amongst themselves and with the FAA will provide the agency

with information on which the FAA can formulate regulatory alternatives.

Information Requested

The FAA solicits on-line discussion and written comments on the questions below and any other ideas the public may have. Note that all of the FAA’s regulatory decisions must be made with an understanding of the costs and benefits of its actions. Therefore, the FAA requests that commenters include estimates of costs for any proposal they recommend.

1. What existing and future launch activities could be conducted without FAA licensing? What criteria could be used to define these activities? Possible criteria include:
 - a. The total impulse of the rocket’s motors;
 - b. The maximum altitude the rocket can reach;
 - c. The physical size of the rocket;
 - d. The materials used to construct the rocket;
 - e. Whether professionally manufactured rocket motors are used;
 - f. Whether the rocket’s propulsion system uses liquid, solid, or hybrid propellant;
 - g. Whether toxic propellants are used;
 - h. The size and location of the launch site; and
 - i. Whether the rocket is launched from a balloon or other airborne platform.**
2. What existing and future launch activities would be appropriate for a “light-license?” What criteria could be used to define these activities? Should similar criteria be used as in question (1) but with higher thresholds?
3. For launch activities that are appropriate for a “light-license,” what standards or safety measures should be required as a matter of FAA licensing

requirements to ensure public health and safety and the safety of property? Possible safety measures include:

- a. The use of trajectory and dispersion analyses during the planning stages of a launch;
 - b. Analyzing the risks to the public during the planning stages of a launch;
 - c. Determining and establishing hazard areas to contain launch hazards; and
 - d. Using “wind weighting” to ensure the launch vehicle flies within established hazard areas.
4. What would be an appropriate application process for a “light-license?” Would standard forms be helpful? Would electronic submission be helpful?
 5. What else, not addressed above, should the FAA consider?

On-Line Public Forum

The public can join the on-line public forum by clicking the “On-Line Public Forum” hyperlink on the Associate Administrator for Commercial Space Transportation’s (AST) Internet home page, <http://ast.faa.gov>, or going directly to <http://ast.faa.govpublicforum>. The FAA will monitor public comments throughout the two-week forum. The FAA may ask clarifying questions of commenters. The FAA will not make any commitments or draw any conclusions during the open docket period. ☆

(Future, continued from page 1)

Cheap-Access-to-Space (CATS) is more and more the primary goal of the space industry and the world space agencies. The realization has finally sunk in that the high cost of access to space is preventing the opening of the space frontier. In the 21st century, humanity WILL solve this problem. Affordable access to space WILL finally become a reality. The space frontier WILL finally be opened to the common person. Welcome to the Future!

When Can I Go???

As an aerospace engineer in the space industry, I can assure you that there has been a great desire to explore and develop space for the last 40 years, both within the space industry and within the world space agencies.

Turning those dreams into reality, however, have proved to be a lot more difficult that we could have imagined. While the electronics revolution races on, the pace of space transportation development is slow at best.

What Can NSS Do to Speed the Pace?

There are a number of factors responsible for the slow pace of space transportation development. One of them is market size, another is insurance issues, another is technology, another is regulation, another is fear, such as the virtual ban on nuclear propulsion development and testing.

Your NSS leadership has been hard at work since September developing two products. The first is our Philosophy Document, which defines who we are, what we stand for, and why we exist. That document was approved by the NSS Executive Committee in December.

The second is our Space Settlement Roadmap, which charts the various paths we believe humanity must make in order to settle space, the ultimate goal of the National Space Society. We are still working on the Roadmap and plan to have a final draft ready by early March.

Every road has bumps along the way, and our Roadmap shows all the barriers we believe are preventing and slowing the pace of space settlement.

What Can I Do to Help?

Once this top-level Roadmap is defined, the NSS leadership will need the help of space activists to define the mini-roads that will allow us to overcome each of the

barriers in our way. While many of those barriers may seem to be solvable by only scientists, engineers, lawyers, or business leaders — we need to find the mini-barriers that are preventing these professionals from getting the job done.

Our goal is to identify the mini-barriers that NSS space activists can remove on their own, whether working on the inside as one of these professionals, or working on the outside to make their job easier, or getting the job done ourselves.

What can YOU do? First, please renew your membership to HAL5, or join if you are not a member. HAL5 is one of the strongest chapters in the NSS and will thus lead the way into the 21st century. Second, please join the NSS if you not already a member. Third, please consider making a donation to HAL5 and/or the NSS. The enclosed membership form has room for all.

Fourth, once you are a member of HAL5 and/or NSS, become involved! Become a space activist and take charge of your future. This is YOUR time now! The 21st century belongs to YOU! This is YOUR future! Make the most of it. In this and future issues of this newsletter, as well as in *Ad Astra* magazine and by email, you will see more and more calls for volunteer action (see pages 6 and 8). Answer those calls as best you can and help to make a difference. Ad Astra! ☆



NSS HQ NEWS

NSS and the *Mission to Mars*

(by Nancy Rosenberg, Membership Mgr.)

Remember the excitement surrounding the release of the blockbuster Tom Hanks movie, *Apollo 13*? NSS chapters set up tables for displays at local movie theaters, held *Apollo 13* parties and distributed the NSS *Apollo 13* educational supplement to the public.

Now the National Space Society with sponsorship from Lockheed Martin has produced an educational newspaper supplement for Touchstone Pictures' *Mission to Mars* and we encourage NSS Chapters to get involved.

The movie, currently scheduled for release on March 10, is a dramatic space adventure directed by Brian De Palma and starring Gary Sinise, Tim Robbins, Don Cheadle, Connie Nielsen and Jerry O'Connell.

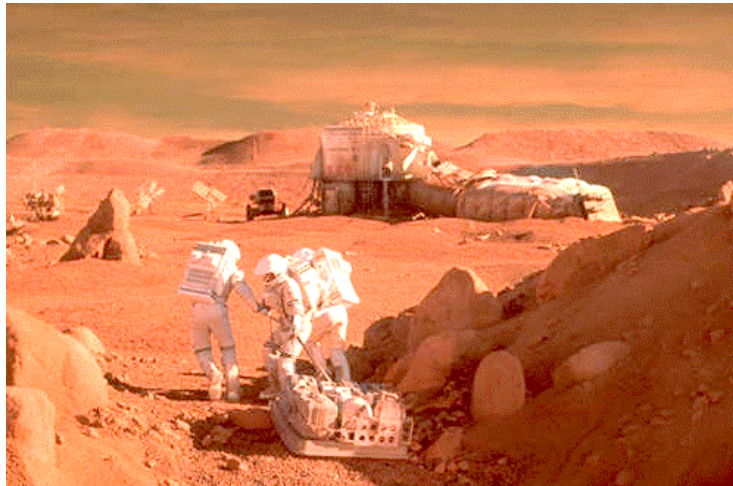
The *Mission to Mars* script is about the dream of exploring the next frontier. By 2020, one expedition to Mars has already arrived. When this first crewed mission to Mars meets with a catastrophic and mysterious disaster, a rescue mission is launched to investigate the tragedy and bring back any survivors. *Mission to Mars* is the inspirational story of the astronauts of the second hurried Mars Recovery mission, the almost insurmountable dangers that confront the heroic crew on their journey through space, and the amazing discovery they make when they finally reach the Red Planet.

NASA Provides Technical Guidance

From its inception, an important part of *Mission to Mars* was to keep the technology as accurate as possible and come in under the \$100 million movie budget. NASA was consulted even before there was a first draft screenplay: The writers

went to Houston before they began writing, and met with the people involved in human spaceflight. The space vehicles depicted in the film are real spaceship concepts or designs that have been reviewed by NASA.

Expert consultants on the film included Matt Golombek, Chief Scientist on the NASA Pathfinder Mission, who mapped Mars and recommended the safest landing site for that mission. He said, "A scientist would look for an interesting landing site — an engineer would look for a flat one!" Dr. Golombek provided guidance to the set designers on how Mars looks.



"On Mars you've got to live off the land," Golombek said. "We know that everything is on Mars to support life: carbon, hydrogen, oxygen and nitrogen. Due to the temperature extremes these elements are locked in the minerals and rocks. Mission personnel will have to manufacture what they need from what is there. We are drawn to Mars because it is special — we've historically been fascinated by the idea that there is life there. But what form is it in? That's the mystery!"

Story Musgrave, a 30-year veteran of NASA and former astronaut (holder of the record for most space walking hours) worked with the cast, relaying the physical and emotional transformation of the spaceflight experience. Musgrave choreographed the actors' stunt work in an artificial gravity environment simula-

tor. He describes the sets as defining the future. His objective for the film was to move spaceflight into art.

Katheryn Clark, NASA's Chief Scientist for the International Space Station (ISS), indicated that while there is no official program at NASA for a human mission to Mars, the multinational ISS is the key to learning how to conduct long-duration space missions like a Mars mission. "Knowing the physiological requirements of zero-g and artificial gravity is a top priority," she said.

NSS Movie Supplement

The NSS supplement has an exciting layout with activities and links to on-line resources. The front page provides a synopsis of the movie and short bios of the stars and their characters. Inside pages include: Behind the Scenes: Making *Mission to Mars*, Construct a Timeline of Mars Exploration, and a Mars Movie Chronology. Highlighted blocks give information on space travel, living conditions and Mars dust storms. The back page

provides a website list where more information is available. Supported by Lockheed Martin and including an endorsement from Touchstone Pictures, the supplement gives readers the opportunity to become NSS members.


100 copies of the supplement will be sent to each Chapter in the first weeks of February. If your Chapter plans to have a booth at a local theater or event and would like to receive additional copies, please contact me at nfnss@aol.com.

HAL5 Interested in Mars Display?


Since the movie is set to premiere during Alabama Space Week, it would be good for HAL5 to take advantage of this opportunity with a HAL5/NSS table at a local movie theater. Send an email to hal5@hiwaay.net for more info. ☆

HAL5 CALENDAR OF MEETINGS AND EVENTS

January 2000

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
16	17 Martin Luther King Jr. Day	18	19	20  HAL5 & Project HALO Meeting 12p, Gold. Corral	21	22
23	24 Voyager 2 at Uranus 1986	25	26	27 HAL5 & Project HALO Meeting 12p, Gold. Corral	28 Challenger Disaster 1986	29
30	31 Explorer 1 launched 1958	February HAL5 Program Night "Our Expanding Universe and other Theological Anomalies" George McKay researches the history and science within Old Testament Biblical accounts 7-9 PM, Thursday, February 3, at Huntsville Public Library Auditorium, 145 Monroe Street				

February 2000

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 STEDTRAIN Meeting 5p, HATS Office	2 Ground Hog Day	3 HAL5 Program "Space America" 7 pm at Library	4	5
6	7 First untethered spacewalk, 1984	8	9	10 HAL5 & Project HALO Meeting 12p, Gold. Corral	11	12
13	14 St. Valentine's Day	15 AME Dinner Meeting 7p, Greenbrier's	16 Goddard flies first liquid-fueled rocket, 1926	17 HAL5 & Project HALO Meeting 12p, Gold. Corral	18 Pluto discovered 1930	19  VBAS Program "X-ray Pulsars" 7:30p, VB Obs.
20 National Engineers Week begins	21 Tennessee Space Week begins	22	23	24 HAL5 & Project HALO Meeting 12p, Gold. Corral	25 Tennessee Space Week ends	26 National Engineers Week ends
27	28 FAA On-line Rocket Forum begins	29	HAL5 Weekly Executive Committee & Project HALO Meeting Noon to 1 PM every Thursday at the Golden Corral buffet restaurant near Madison Square Mall			

March 2000

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
March HAL5 Program Night "Astronaut Jan Davis" (tentative, invited only) 7-9 PM, Thursday, March 2, at Huntsville Public Library Auditorium, 145 Monroe St.			1 IEEE Board Meeting , 11:30a, Old Country Buff	2 HAL5 Program "Jan Davis" (??) 7 pm at Library	3	4 VBAS Program "Ms. Whitt" 7:30p, VB Obs.
5 Alabama Aerospace Week Begins	6	7 ASCE Board Meeting , 11:00a, Holiday Inn, Mall	8 Ash Wednesday	9 HAL5 & Project HALO Meeting 12p, Gold. Corral	10 FAA On-line Rocket Forum ends	11 Alabama Aerospace Week Ends
12 "March Storm" Week begins	13 Uranus discovered 1781	14 Einstein born 1879	15	16 HAL5 & Project HALO Meeting 12p, Gold. Corral	17 "March Storm" Week ends	18 VBAS Program "Stellar Death" 7:30p, VB Obs.

March Storm 2000
March 12-17, Washington, DC
 (by Edward Wright, Director)

Greetings, March Storm veterans and fellow space activists. As most of you know, March Storm is an annual event that gives citizens from across the country the chance to speak directly to their government on an issue they care deeply about — opening the Space Frontier for all Americans! This is an issue that elected representatives seldom hear about, which makes your participation all the more important. This is not an aerospace industry agenda or a NASA agenda, it is an American agenda, and we the people are the only ones who can convey it. On behalf of ProSpace America, I would like to urge you to take the time now to sign up for this event, which may be the most important March Storm ever — and the most fun!

Why March Storm 2000 is Important

The March Storm 2000 agenda is still being written, but one thing is clear — it will focus strongly on opening the Space Frontier through Cheap Access to Space (CATS). CATS is the single most important enabling technology for all of the things we might want to do in space — tourism, solar power, the Moon, Mars, you name it. The good news is that several companies are working on this problem right now. Hundreds of millions of dollars have been invested and given continued funding, it's only a matter of time before we see results. The bad news is, recent market conditions related to the failures of LEO communications satellites such as Iridium have put the brakes on that funding. Some government actions have been less than helpful as well. In the words of Charles Dickens, "It is the best of times, it is the worst of times...."

There are a number of things the government can do to help the situation, by creating a more favorable climate for investment in new launch systems. (There are also some types of "help" we would rather not see.) The government incentives under consideration include tax credits, launch purchases, and favor-

able regulatory policies, aimed at unlocking private investment in new launch systems.

ProSpace Agenda

We will continue to push for the privatization of the International Space Station. America does not need an expensive government office building in Earth orbit. It needs an industrial park, the beginning of an extraterrestrial community and our beachhead in space.

Another timely issue is government funding and commitment to purchase space science data from commercial space exploration missions. NASA's planetary sciences program is currently in disarray. The loss of two Mars probes in the last few months (four, including the two Microprobes) has resulted in a flurry of accusations and fingerpointing. Critics are saying that NASA's "better, faster, cheaper" approach is to blame. But they cannot openly advocate a return to the multi-billion-dollar missions of the past — the money just isn't there, Congress would never fund such a thing, and they know it. As a result, they have no good alternative to offer. We do! Instead of rewarding effort, the US government should pay for results.

These are just a few of the issues we are currently considering for March Storm. There are many others currently under consideration, such as Zero-G Zero-taxes (a tax holiday for new products and services created in space) and commercial resupply of the ISS.

Open to Suggestions

At this point, we would like to hear your suggestions of issues you think should be included. If you email your ideas to me (edwright@prospace.org), I will share them with the ProSpace board and members.

Why March Storm 2000 will be Fun

We are working on a number of special events to make this March Storm the most memorable ever. One of these is a

special White House event that will be open to all March Storm participants. No promises — nothing official yet — but we're working on it.

I'm also pleased to announce that we have arranged for a better hotel. The hotel we've selected is the Holiday Inn in Ballston, near the Metro station. This hotel is slightly more expensive than last year's (\$95 for weekend nights, \$110 during the week), but it is in a much better neighborhood. The vicinity of the hotel includes at least a dozen restaurants in all price ranges, a mall with food court and 12 movie theaters, and quick-printing and office supply stores. If you'd like to share a hotel room and don't have a roommate, let us know. We will be setting up a matching service in the very near future.

Schedule

Sunday, March 12: Mandatory Training for all participants. We brief you on the issues, and train you to deliver the message.

Monday March 13 to Friday March 17: Briefings on the Hill in teams with Congressmen and Senators and their staff.. Come for as many days as you can.

What to do now!

Register! (I bet you could see that coming, couldn't you?) Training is on Sunday, March 12. Briefings take place on March 13-17. Come for as many days as you can. An online registration page is available. Please read our requirements for attending.

<http://www.prospace.org/mstorm/>

Make your airline reservations. There are some excellent deals right now. Last night, I checked airfares from Seattle to DC and found fares as low as \$224 on many flights.

Recruit your friends. As I said before, March Storm 2000 is important. It's going to be big. It's going to be fun. But in case that isn't enough to convince you, here's an added incentive. We're

going to have a contest. Win valuable prizes. Whoever recruits the most new participants for March Storm 2000 will receive his or her choice of the following software: *Microsoft Office 2000 Premium*, *Microsoft Office 98 Gold for Macintosh*, *Microsoft Developer Studio Enterprise Edition*, or *Microsoft Windows 2000*. The first and second runners up will receive a copy of *Microsoft Flight Simulator Professional Edition*. ☆

Space For Thought

(by Richard Richardson, © 2000)

[Editor's Note: With apologies to the author, this article was edited down by 33% in order to fit within these pages.]

It has been shown that humans can live in space for indefinite periods of time. It seems likely that humans could live fairly well in space for lifetime lengths of time. Unfortunately, there is no concrete evidence, yet, that any Earth originated life form can live at all in space without supplies from Earth.

The data seems clear that space does not offer any ready to use (by humans) life support anywhere in our own solar system. Contrast any space environment we could reach with current technology to anywhere on the surface of our home planet. Barring predatory animals, falling off a cliff, etc., an unprotected person could survive for several minutes even in the most severe location.

And in many locations, throughout much of the year, you could set a naked human with nothing but their skin for protection and their wits and hands for tools and, if they know what to do, they could live out a normal human lifespan — even if the conditions where they are would later turn inhospitable — by utilizing local resources to provide the food, clothing, shelter, and tools necessary.

Just try the same thing on the moon, Mars, Europa, or at Earth's or the sun's L5 point. In fact, even the hardest, most knowledgeable, cleverest person wouldn't survive even a single hour.

Space settlers must depend on imported or manufactured infrastructure and supplies. Their manufacturing also must depend on imported or manufactured infrastructure and supplies. Yet, because there is no one already settled in space to greet them, any space settlers will be starting from scratch. And for some time after the first settlement, founders of new settlements will probably face similar circumstances.

This is all obvious. But not so clear are the ramifications these facts have on the economy, culture, and self determination of early settlers. To survive, early settlers will have to be committed to each other's welfare whether they want to be or not. Their greatest asset will be each other and the body of skill, knowledge, and creativity they, as a group, possess. They must depend on each other. Also, for what will probably be at least several years, they must depend on other people who are remote from their settlement's physical location.

In order to be able to reliably depend on each other there must be an adequate framework of social organization. In order to reliably depend on other people in other places — whether on Earth or in other space settlements — they must have an adequate bargaining position. And considering the human nature of human governments, businesses, and powerful individuals, this almost certainly means that the settlers must have a government of their own, under their own control, to unite them and give them something sufficiently threatening to others that they can reliably convince those others to neither pillage their settlement and/or its resources nor to ignore their needs.

The basically remote location of a space settlement will be a great help. But bear in mind that if there is even one space settlement, it will mean that space is no longer nearly as remote as it currently is. I suggest that, at the point of having arrived at the location where the space settlement will be set up, it will be mighty late to be doing the work of developing a government. Just as with technology, it would be far better to go

prepared with something off the shelf. However, I would argue that there is currently nothing “on the shelf” and ready to apply to the special circumstances of a space settlement.

Different Models

We could consider modern democracy as practiced in its various forms here on Earth. But the democracies would seem to not have enough business orientation nor the freedom as a government to conduct business to the degree necessary to address the need of the space settlement to do business in order to survive.

There is the “company town” model, but it doesn't have many of the democratic characteristics needed, nor enough authority over the individual residents to meet the special needs of a space settlement. Any one can get up and leave a company town if they don't like something. That won't be so easy in space. Likewise, if the company doesn't want someone — justly or unjustly — the company can send them packing. That won't be so easy in space either — even when it isn't so remote as it is now. And an early space settlement will probably be better off if it doesn't inspire discontent through the arbitrary use of authority.

Nor will it want (because of economic circumstances) to waste money by spending it to send someone away. It may not be impossible to do so if absolutely necessary but, if it would like to have a good chance of survival, an early space settlement will have to have other options to try first. Still, there may be some things which can be gleaned from the “company town” model.

We might also consider the military hierarchy model. But we are talking about a settlement — that means kids, old folks, people of all temperaments who are there because they were born or taken there, not because of any choice of their own. Although clearly not an answer in itself, there is probably something valuable we could borrow from the military model, too.

(see Model on page 12)

The Value of Your HAL5 Membership and Donations

(by Ronnie Lajoie, HAL5 Treasurer)

Why should you renew your HAL5 membership, or join for the first time? This is a very good question. In this article, I intend to convince you that your membership dues and donations are being wisely managed.

HAL5 Income in 1999

For financial reporting purposes, HAL5 separates its Project HALO and non-HALO funds. Since its inception in 1994, Project HALO has survived on the net revenue of the 1993 ISDC plus donations from people like you and, more recently, HATS and NASA. No "HAL5" funds are used for Project HALO. This allows HAL5 to build up a reserve to enable us to do other projects, such as the Southeast Space Summit we hosted in July.

Last year, as shown in Figure 1, HAL5 raised \$1,492 in revenue, up 29% from 1998. The majority of that amount (55%), not surprisingly, came from HAL5 membership dues from our (now expired) 47 members (9 less than 1998). Dues income was down 11%.

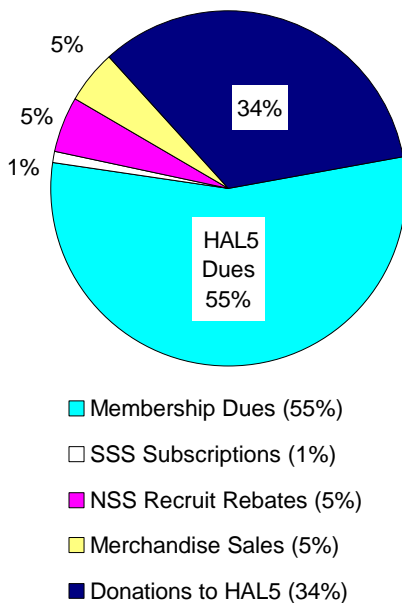


Figure 1. HAL5 1999 Income \$1,492 in revenue

On the other hand, donations increased by a whopping 153%, \$505 compared to 1998's \$200! All of these donations (34% of 1999 revenues) came from our very generous members — thank you all very much! Not included in these cash donations are two sets of donated surplus computers, estimated at a value of almost \$600! Those donations came from AI Signal Research and HAL5 member Jerry Solomon. Jerry also donated cash to help us upgrade them. (We still have to do this, by the way.)

Some addition revenue was raised by the selling of two newsletter subscriptions (the 1%, two more were donated), and 11 copies of our special HALO SL-2 issue. The other part of the 5% in sales revenue came from the selling of a surplus computer monitor and keyboard, and six leftover 1993 ISDC T-shirts.

HAL5 Recruits Nine NSS Members

HAL5 recruited nine new NSS members in 1999 (none in 1998), six of which count towards the still ongoing 1999 NSS "Campaign for the Future". Two-thirds of HAL5 members are also NSS members. I encourage the rest of you to join, especially now that the NSS leadership is finally getting its act together (more about that in the next issue). Rebates for recruiting NSS members accounted for \$75 or 5% of our 1999 revenue.

HAL5 Expenses in 1999

Last year, as shown in Figure 2, a total of \$1,306 was spent on expenses, leaving a reserve of \$186 to add to our savings. We now have a large enough reserve in which to start new projects, like our Southeast Space Summit. We still would like to host a gala event or a small regional space development conference, perhaps in early October, during the new World Space Week.

About 45% of the expense money (40% of the total "outflow") went to fund the six bimonthly issues of the HAL5 newsletter, almost all for copying and postage expenses (3% went for artwork). That's down 11% from 1998, though the

average cost per member actually went up from \$11.66 to \$12.62.

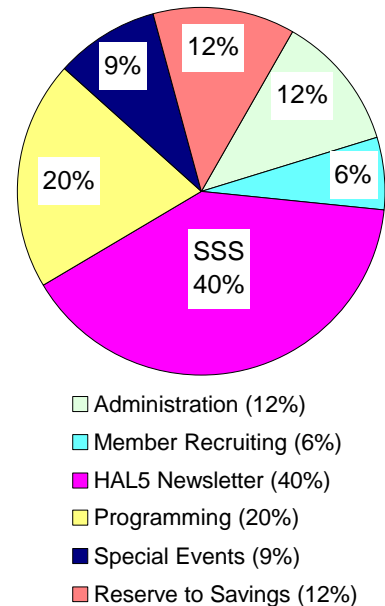


Figure 2. HAL5 2000 Outflow \$1,306 expenses + \$186 savings

The average cost increased because we make 10 to 20 extra copies of each issue to help recruit new members at our monthly Program Nights. We also supply 6 free newsletters to our fellow NSS chapters in the southeast region, 5 for newsletter exchanges, and one each to NSS Headquarters, our Regional Director, and our Regional Organizer.

At the Southeast Space Summit, we made another offer to our fellow Region 5 chapters to adopt the *Southeastern Space Supporter* as their own and make it a truly regional newsletter. Thus far, no chapter has taken up our open offer.

Our next largest expense category at 23% (20% of outflow) was for our HAL5 monthly Program Nights, mostly for flyers and postcard notice copying and postage expenses. This was double 1998 because we made a lot of free HAL5 material for our HALO Exhibit display at the "October Sky" premiere.

Special events last year were 10% of expenses, one-fourth of which went to cover remaining expenses from the 1998 HAL5 Christmas Party. The rest went to cover losses from the Southeast Space

Summit, which had \$677 in revenue but \$778 in expenses. Since the HAL5 Executive Committee had allocated \$200 for the event, a loss of half was deemed acceptable. At the Summit, we also received a \$25 donation and sold 6 leftover 1993 ISDC T-shirts for \$30; thus we actually “lost” only \$46.

The final 15% of expenses (12% of outflow) was used to cover HAL5 administrative and recruiting activities, mostly to cover copying of membership forms, mailbox rental, and for postage.

Project HALO Income in 1999

Last year, as shown in Figure 3, HAL5 received only \$993 in new revenue for Project HALO. That is a huge drop of 91% from 1998. The main reason for the drop was that we still lack a sponsor for our next launch attempt. We did not receive any money from the NSS Board of Governors as we had hoped, nor from the NSS budget. That might change, however, thanks to the new emphasis on funding chapter projects. We also started discussing a joint venture with the U.S. Space and Rocket Center, but those plans fell through when Director Mike Wing got fired for other reasons.

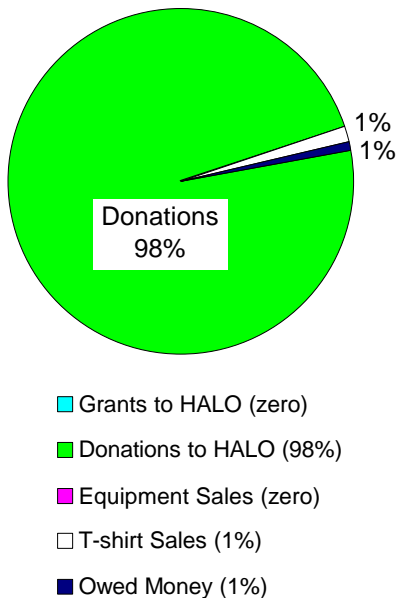


Figure 3. HALO 1999 Income \$993 in revenue

Almost all of our income (98%) came from cash donations from generous HAL5 members and other HALO supporters. Thank you all very much! The rest, a measly \$21.63 (2.1% of income), came from sales of our last XL HALO T-shirt and some owed money. We had hoped that our Project HALO exhibit at the “October Sky” premiere would have brought in both donations and volunteers, but it brought in neither.

Frankly, we need YOUR help. We need ideas for raising money for Project HALO. Merchandising can work, but we need specific concepts and estimates of how much we need to invest before we can start selling the products. HALO bumper stickers? HALO pins? Hats?

If you have a serious idea to help us raise money, and our willing to put in a little volunteer time to help make it a reality, please send an email message to me at: hal5@hiwaay.net as well as Greg Allison at: ghallison@aol.com

Project HALO Expenses in 1999

Last year, as shown in Figure 4, a total of \$457 was spent on Project HALO expenses. That is a huge drop of 96% from 1998. The HAL5 Executive Committee decided to focus its efforts on fund-raising activities and finding a sponsor for a HALO SL-2 reflight, prior to spending our remaining money on further development and testing. Because of this, more than half of the money raised in 1999 (54%) went into HALO savings.

Two-thirds of “1999 expenses” actually went to complete reimbursement of 1998 HALO SL-2 expenses. Both 1998 and 1999 HALO-related expenses have now all been paid, thus our starting balance of \$719 plus new donations will only go towards new HALO activities.

The largest share of the expenses (56%, or 26% of Outflow) went to HALO-related programming, about half of which was for the copying of the HALO SL-2 Information Kits passed out at our HALO exhibit at the Hollywood 16 movie theater and at TABES 1999.

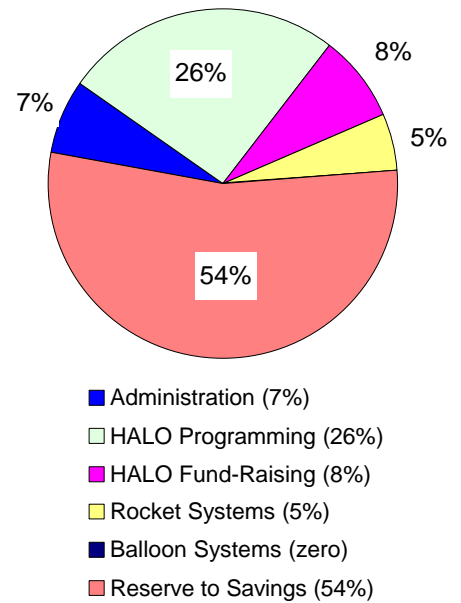


Figure 4. HALO 1999 Outflow \$457 expenses + \$536 savings

The remaining expense money went for administrative mailing of “Thank You” certificates and photograph processing, as well as copies and photographs made for fund-raising activities.

Project HALO Status

The main unknown is still the composite oxidizer tank, which took a tremendous shock when it hit the barge deck. Before it can be reflown, the tank needs to be “recertified” for flight. This requires a pressure test. Before we do that, we want to make sure the it will survive the test. Towards that end, the tank was brought to UAH last year and is now awaiting an ultrasound test.

For the next HALO SL-2 attempt, we need to raise the money to rent a boat from which to launch our balloon. The SL-1 method of launching from near the coast is still an option, and we have begun talking with the FAA about it. We want to avoid needing to pay for any expensive liability insurance though.

If we are to raise the money we need though, we will have to invest more in fund raising. We have some ideas, but we could definitely use more, as well as volunteers to help do some of the work. Please email me: hal5@hiwaay.net ☆

(Model, continued from page 9)

We could even take a look at the “club” model. Its intimate democracy might be adaptable to the confines of a space settlement.

Cooperative Businesses

I suggest co-ops, — cooperative businesses consisting of open, easily affordable memberships, excess profits returned to the members, a board composed of members and elected by the members. I suggest cooperative businesses engaged in developing technologies we will need, developing services based on new technologies to meet our current and later spacefaring needs, developing infrastructure we will need, providing services common in wealthy countries today which we will need even more sorely in space — like banking, health, and communications services.

The co-op form of business is extremely flexible and can adapt rapidly to new conditions, for one example, being relatively authoritarian when necessary (as seldom is on Earth — for co-ops, that is) but unable to perpetuate authoritarianism against the will of the members. Members hold not only political power in the coop, but economic power as well so that their concerns are directly of importance to the coop. Contrariwise, members not only hold economic power in the coop but also have vested political and social interests as well so that they have considerable incentive to look toward the overall and long term interests of the coop. ☆

Upcoming Events of Interest to HAL5 Members

- Thu., Feb. 3 — 7:00 - 8:30 PM **HAL5 Program on “Our Expanding Universe and other Theological Anomalies”** by George McKay, aerospace engineer (retired) and Bible researcher, at Huntsville Public Library, 915 Monroe Ave.; free; questions: 256-461-5934
- Thu., Mar. 2 — 7:00 - 8:30 PM **HAL5 Program on “TBD”** by TBD, at Huntsville Public Library, 915 Monroe Ave.; free; questions: 256-461-5934
- Sun., Mar. 7 to Sat., Mar. 13 **National Space Week / Alabama Aerospace Week**, focused public education and promotion of current and future space activities; questions on HAL5 participation: 256-859-5538
- Sun., Mar. 21 to Fri., Mar. 26 **2000 ProSpace “March Storm”**, in Washington, D.C.; space activism to Congress; questions: email jkrukin@prospace.org
- Tue., Apr. 4 to Mon., Apr. 24 **“Odyssey: Images in Space”**, Huntsville Art League gallery at the Parkway City Mall; no charge; questions: 256-534-3860
- Thu., Apr. 6 — 7:00 - 8:30 PM **HAL5 Program on “TBD”** by TBD, at Huntsville Public Library, 915 Monroe Ave.; free; questions: 256-971-3055
- Fri., Apr. 28 to Sun., Apr. 30 **“Panoply Festival of the Arts”** at Big Spring International Park; no charge, donations accepted; 256-519-ARTS.
- Thu., May 4 — 7:00 - 8:30 PM **HAL5 Program on “TBD”** by TBD, at Huntsville Public Library, 915 Monroe Ave.; free; questions: 256-971-3055
- Fri., May 26 to Mon., May 29 **2000 International Space Development Conference (ISDC)**, in Houston, Texas; \$65 fee; questions: 256-971-3055
- Tue., May 30 to Thu., June 1 Technical And Business Exhibition/Symposium (**TABES 2000**): “The Tennessee Valley 2000: Connecting the Corridor for the Future” at the Von Braun Center; 9:00 am until 9:00 PM; free; questions: Melissa Roth, 256-882-1221
- Tue., May 30 — 7:00 - 9:00 PM **HATS Professional of the Year Awards Dinner** at the Von Braun Center; about \$15; questions: 256-837-4347
- Fri., Aug. 25 to Sat., Aug. 26 **2000 IEEE Computer Fair**, hardware and software, at the Von Braun Center, Monroe Avenue, Huntsville; free

Special Announcements

Time to Renew Your Membership

**HAL5 Program Night on
“Our Expanding Universe and
other Theological Anomalies”
Thursday, February 3, 7–9 pm**

Huntsville Alabama L5 Society
PMB 168, 1019 Old Monrovia Road
Huntsville, AL 35806
ADDRESS CORRECTION REQUESTED

Place
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